

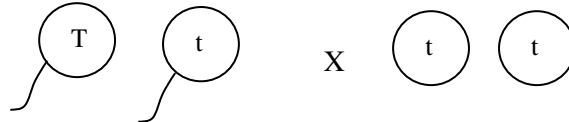
Name _____

One Factor Cross: Mendelian Pattern

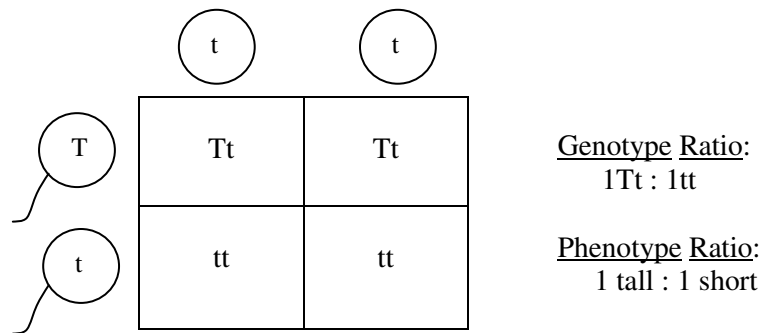
1. Write the genotype of the parents of the cross using the correct symbols.

EX: Cross a heterozygous tall plant with a short plant ♂ Tt X tt ♀

2. Segregate the genes (on chromosomes). This allows you to determine all the gene combinations possible in the egg and sperm cells.



3. Set up the Punnett square correctly. Use that to determine the genotype and phenotype ratios. Also determine the probabilities indicated.



Read each problem carefully. Set up the problem using the three steps from above. Show all of your work, including a Punnett square.

1. In Mendel's crosses for plant height, tall (T) is dominant over short (t).
Cross two heterozygous tall plants.

♂ _____ X _____ ♀

GENOTYPE RATIO: _____

PHENOTYPE RATIO: _____

Probability offspring has genotype TT: _____

Probability offspring has genotype Tt: _____

Probability offspring has genotype tt: _____

2. Another trait Mendel used was the color of pea pods.

Green colored pods (G) are dominant over yellow pods (g).

Cross a male plant that is heterozygous for green pods and a female plant with yellow pods.

♂ _____ X _____ ♀

GENOTYPE RATIO: _____

PHENOTYPE RATIO: _____

Probability offspring has green pods: _____

Probability offspring has yellow pods: _____

3. In Mendel's crosses axial (A) flower position is dominant over terminal (a) flower position.
Cross a male plant with terminal flowers and a female plant that is homozygous for axial flowers.

♂ _____ X _____ ♀

GENOTYPE RATIO: _____

PHENOTYPE RATIO: _____

Probability offspring has genotype AA: _____

Probability offspring has genotype Aa: _____

Probability offspring has genotype aa: _____

Probability offspring has axial flowers: _____

Probability offspring has terminal flowers: _____

4. In guinea pigs black coat color (B) is dominant over brown (b) coat color.
Cross two heterozygous black guinea pigs.

♂ _____ X _____ ♀

GENOTYPE RATIO: _____

PHENOTYPE RATIO: _____

Probability offspring has genotype BB: _____

Probability offspring has genotype Bb: _____

Probability offspring has genotype bb: _____

Probability offspring has black fur: _____

Probability offspring has brown fur: _____

5. Curly hair (C) is dominant over straight hair (c).
Cross a male that is homozygous for curly hair and a female that is heterozygous for curly hair.

♂ _____ X _____ ♀

GENOTYPE RATIO: _____

PHENOTYPE RATIO: _____

Probability offspring has genotype CC: _____

Probability offspring has genotype Cc: _____

Probability offspring has genotype cc: _____

Probability offspring has curly hair: _____

Probability offspring has straight hair: _____